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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/774,404	Applicant(s) SEO ET AL.	
	Examiner Michael V. Battaglia	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 February 2004 and 17 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/359,128.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Fitzpatrick et al (hereafter Fitzpatrick) (US 5,757,735).

In regard to claim 1, Fitzpatrick discloses an adaptive writing method of writing input data on an optical recording medium (Fig. 6, element 670 and note that a magneto-optical disc falls into the general class of optical recording media (see Response to Arguments in the Non-Final Rejection mailed May 9, 2006)) using a write pulse waveform ("laser control codes" of Col. 5, lines 55 and Col. 7, lines 28) including a first pulse, a last pulse and a multi-pulse train (Tables 1 and 2 of Cols. 8-9, particularly the laser control codes for 6T-8T mark lengths, and note that each consecutive series of 1's is a pulse (Col. 5, lines 60-65)), comprising: controlling the write pulse waveform based on a grouping table (Fig. 3, elements 340a and 340b) to generate an adaptive write pulse waveform (Fig. 6, "Pulses" and Col. 9, lines 26-29 and 53-56), the grouping table storing width data of the first and/or last pulses of the write pulse waveform (number of consecutive 1's for the first and last pulses of the write pulse waveform determines width of first and last pulses) varying according to corresponding stored values of lengths of marks to be written (the width data in Tables 1 and 2 of Cols. 8-9 of the first and/or last pulses of the write pulse waveform vary as the length of the mark to be written progresses from 2T to 8T); and optically writing the input data on the optical recording medium using the adaptive write

pulse waveform (Fig. 6; Col. 4, lines 43-53; Col. 5, lines 53-58; and see Response to Arguments below), wherein the generated adaptive write pulse waveform is generated without regard for a trailing space of a present mark being written using the adaptive write pulse waveform (Col. 9, lines 24-56). It is noted that Fig. 4 shows the widths of the first and last pulses of the write pulse waveform varied to adapt to the presence or lack of residual heat (Col. 8, lines 20-26 and Col. 11, lines 13-21) and the write pulse waveform output by element 620 of Fig. 6 is therefore an adaptive write pulse waveform.

In regard to claim 2, Fitzpatrick discloses that the grouping table stores the width data of the first and/or last pulses for the write pulse waveform by grouping a length of a present mark and a length of a leading space of the present mark into corresponding pulse groups (each "laser control code" of Tables 1 and 2 of Cols. 8-9 is a pulse group) according to corresponding lengths of the present mark (lengths 2T-8T of Tables 1 and 2 of Cols. 8-9) and leading space ("last written space" of Col. 9, lines 38-51).

In regard to claim 3, Fitzpatrick discloses an adaptive writing method of writing input data on an optical recording medium (Fig. 6, element 670 and note that a magneto-optical disc falls into the general class of optical recording media (see Response to Arguments in the Non-Final Rejection mailed May 9, 2006)) using a write pulse waveform ("laser control codes" of Col. 5, lines 55 and Col. 7, lines 28) including a first pulse, a last pulse and a multi-pulse train (Tables 1 and 2 of Cols. 8-9, particularly the laser control codes for 6T-8T mark lengths, and note that each consecutive series of 1's is a pulse (Col. 5, lines 60-65)), comprising: controlling the write pulse waveform based on a grouping table (Fig. 3, elements 340a and 340b) having width data grouped in pulse groups (each "laser control code" of Tables 1 and 2 of Cols. 8-9 is a pulse group) which

group the first and/or last pulses of the write pulse waveform by corresponding lengths of a present mark (lengths 2T-8T of Tables 1 and 2 of Cols. 8-9) of input data and a leading space ("last written space" of Col. 9, lines 38-51) of the present mark to generate an adaptive write pulse waveform (Fig. 6, "Pulses" and Col. 9, lines 26-29 and 53-56); and optically writing the input data on the optical recording medium using the adaptive write pulse waveform (Fig. 6; Col. 4, lines 43-53; Col. 5, lines 53-58; and see Response to Arguments below). It is noted that Fig. 4 shows the widths of the first and last pulses of the write pulse waveform varied to adapt to the presence or lack of residual heat (Col. 8, lines 20-26 and Col. 11, lines 13-21) and the write pulse waveform output by element 620 of Fig. 6 is therefore an adaptive write pulse waveform.

In regard to claim 4, Fitzpatrick discloses an adaptive writing method of writing input data on an optical recording medium (Fig. 6, element 670 and note that a magneto-optical disc falls into the general class of optical recording media (see Response to Arguments in the Non-Final Rejection mailed May 9, 2006)) using a write pulse waveform ("laser control codes" of Col. 5, lines 55 and Col. 7, lines 28) including a first pulse, a last pulse and a multi-pulse train (Tables 1 and 2 of Cols. 8-9, particularly the laser control codes for 6T-8T mark lengths, and note that each consecutive series of 1's is a pulse (Col. 5, lines 60-65)), comprising: controlling the write pulse waveform based on a grouping table (Fig. 3, elements 340a and 340b) to generate an adaptive write pulse waveform (Fig. 6, "Pulses" and Col. 9, lines 26-29 and 53-56), the grouping table storing width data of the first and/or last pulses of the write pulse waveform (number of consecutive 1's for the first and last pulses of the write pulse waveform determines width of first and last pulses) grouped in corresponding pulse groups (each "laser control code" of Tables 1 and 2 of Cols. 8-9 is a pulse group) according to lengths of marks to be written

(lengths 2T-8T of Tables 1 and 2 of Cols. 8-9) and/or lengths of spaces ("last written space" of Col. 9, lines 38-51) adjacent to the marks to be written; and optically writing the input data on the optical recording medium using the adaptive write pulse waveform (Fig. 6; Col. 4, lines 43-53; Col. 5, lines 53-58; and see Response to Arguments below). It is noted that Fig. 4 shows the widths of the first and last pulses of the write pulse waveform varied to adapt to the presence or lack of residual heat (Col. 8, lines 20-26 and Col. 11, lines 13-21) and the write pulse waveform output by element 620 of Fig. 6 is therefore an adaptive write pulse waveform.

In regard to claim 5, Fitzpatrick discloses that the controlling the write pulse waveform comprises determining from the input data a length of a present mark to be written (Col. 6, lines 29-55), and selecting from the grouping table one of the width data of the first and/or last pulses of the write pulse waveform which is associated with a length of a mark which corresponds to the determined length (Col. 9, lines 52-55).

In regard to claim 6, Fitzpatrick discloses that the controlling the write pulse waveform further comprises determining from the input data a length of a space adjacent to a present mark to be written (Col. 6, lines 29-55), and selecting from the grouping table one of the width data of the first and/or last pulses of the write pulse waveform which is associated with a length of a space which corresponds to the determined length (Col. 9, lines 28-55).

In regard to claim 7, Fitzpatrick discloses that the controlling the write pulse waveform further comprises determining from the input data another length of a space adjacent to the present mark to be written (Col. 6, lines 29-55), and the selecting from the grouping table comprises selecting one of the width data of the first and/or last pulses of the write pulse waveform which is associated with both a length of a mark which corresponds to the determined

length and a length of a space which corresponds to the another determined length (Col. 9, lines 28-55).

In regard to claim 8, Fitzpatrick discloses that the controlling the write pulse waveform comprises determining from the input data a length of a present mark to be written (Col. 6, lines 29-55), and selecting from the grouping table one of the width data of the first and/or last pulses of the write pulse waveform which is associated with a stored length value of a mark to be written which corresponds to the determined length (Col. 9, lines 52-55).

In regard to claim 9, Fitzpatrick discloses that the controlling the write pulse waveform comprises determining from the input data a length of a lead space of a present mark to be written (Col. 6, lines 29-55), and selecting from the grouping table one of the width data of the first and/or last pulses of the write pulse waveform which is associated with a stored length value of the leading space which corresponds to the determined length (Col. 9, lines 28-55).

In regard to claim 10, Fitzpatrick discloses that the controlling the write pulse waveform comprises determining from the input data another length of a leading space adjacent to the present mark (Col. 6, lines 29-55), and the selecting from the grouping table comprises selecting one of the width data of the first and/or last pulses of the write pulse waveform which is associated with both a stored length value of a mark which corresponds to the determined length and a stored length value of the space which corresponds to the another determined length (Col. 9, lines 28-55).

In regard to claim 11, Fitzpatrick discloses that the controlling the write pulse waveform comprises determining from the input data a length of a present mark to be written (Col. 6, lines 29-55), and selecting from the grouping table one of the width data of the first and/or last pulses

of the write pulse waveform which is associated with a length of a mark which corresponds to the determined length (Col. 9, lines 52-55).

In regard to claim 12, Fitzpatrick discloses that the controlling the write pulse waveform comprises determining from the input data a length of a space adjacent to a present mark to be written (Col. 6, lines 29-55), and selecting from the grouping table one of the width data of the first and/or last pulses of the write pulse waveform which is associated with a length of a space which corresponds to the determined length (Col. 9, lines 28-55).

In regard to claim 13, Fitzpatrick discloses that the controlling the write pulse waveform comprises determining from the input data another length of a space adjacent to the present mark to be written (Col. 6, lines 29-55), and the selecting from the grouping table comprises selecting one of the width data of the first and/or last pulses of the write pulse waveform which is associated with both a length of a mark which corresponds to the determined length and a length of the space which corresponds to the another determined length (Col. 9, lines 28-55).

In regard to claim 14, Fitzpatrick discloses that the generated adaptive write pulse waveform is generated according to the lengths of the present mark and the leading space regardless of a length of a trailing space of the present mark (Col. 9, lines 28-55).

In regard to claims 15 and 17, Fitzpatrick discloses that the pulse groups comprise a short pulse group (3T length group of Table 2 of Cols. 8 and 9 and Col. 8, lines 5-7) and another pulse group (5T length group of Table 2 of Cols. 8 and 9), each member of the another pulse group having lengths greater than each member of the short pulse group (Table 2 of Cols. 8 and 9).

In regard to claim 16, Fitzpatrick discloses that the present mark comprises another adjacent space other than the adjacent space such that the present mark is between the adjacent

space and the another adjacent space (Col. 6, lines 29-55); and the generated adaptive write pulse waveform is generated according to the lengths of the present mark and the adjacent space regardless of a length of the another adjacent space of the present mark (Col. 9, lines 28-55).

In regard to claim 18, Fitzpatrick discloses that the grouping table pulse groups comprise a short pulse group (2T length group of Table 1 of Col. 8 and Col. 8, lines 5-7) and another pulse group (8T length group of Table 1 of Col. 8).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 19-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzpatrick as applied to claims 1, 3 and 4 above, and further in view of Winarski (US 6,115,339).

In regard to claims 19, 22 and 25, Fitzpatrick discloses the adaptive writing method of claims 1, 3 and 4. The method of Fitzpatrick writes data in a manner that is "efficient and reliable" by adaptively providing "precomp" to laser multipulse patterns "used to write a desired mark" (Col. 4, lines 43-53). Furthermore, the laser multipulse patterns are changed "to accommodate different types of [magneto-optic (MO)] media" or "other media" to be written using the MO drive" (Col. 4, lines 54-57 and Col. 8, lines 27-35). Therefore, the optical recording medium of Fitzpatrick comprises different types of MO media or other media (Col. 4, lines 54-57 and Col. 8, lines 27-35). However, Fitzpatrick does not disclose that the different types of MO media or other media comprises a digital versatile disc (DVD).

Winarski discloses a DVD with recording layers formed of magneto-optic materials (Col. 7, lines 16-18) and a storage capacity increased from that of traditional compact discs (Col. 3, lines 20-26).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the different types of MO media or other media of Fitzpatrick to comprise the DVD of Winarski as suggested by Winarski, the motivation being to increase the storage capacity of the magneto-optical media on which the method of Fitzpatick writes and to efficiently and reliably write data on the magneto-optical DVD of Winarski.

In regard to claims 20, 23 and 26, Winarski discloses that the DVD comprises a DVD random access memory (DVD-RAM) (Col. 7, lines 16-18).

In regard to claims 21, 24 and 27, Winarski discloses that the DVD comprises a high-density DVD (Col. 3, lines 20-26).

Response to Arguments

3. Applicant's arguments filed July 28, 2006 have been fully considered but they are not persuasive. Applicant argues that Fitzpatick does not disclose "optically writing the input data on the optical recording medium using the adaptive write pulse" as is claimed in claims 1, 3 and 4 because laser pulses emitted during writing are not writing pulses (see page 7 of Applicant's Remarks filed July 28, 2006).

Applicant's argument that the laser pulses of Fitzpatrick emitted during writing are not write pulses is contradicted by the express disclosure of Fitzpatrick that "[t]he laser multi-pulse patterns represent the laser pulses to be used to write a desired mark" (Col. 4, lines 43-53). Nevertheless, Applicant reasons that the laser pulses of Fitzpatrick are not writing pulses because

data is stored in a magneto-optical medium in magnetic storage domains, which also require application of a magnetic field. Thus, Applicant reasons that the rejections confuse magnetically writing a magneto-optical medium with optically writing a phase change or dye medium. However, Applicant confuses the manner in which data is stored in a magneto-optical medium (magnetic storage domain) with the manner in which data is written to the magnet-optical medium. While there may be a magneto-optical medium that requires only magnetic writing (i.e. only application of a magnetic field),[1] the magneto-optical medium of Fitzpatrick requires optical writing in addition to magnetic writing to store data in magnetic storage domains. Fitzpatrick discloses that "[t]o write a domain from user data, several steps are necessary" (Col. 5, lines 44-45). The necessary steps include "generat[ing] laser control codes to the laser drive 630 for writing domains" and emitting "pulsed laser beams" (Col. 5, lines 51-58).

Specifically in optically writing the magneto-optical medium of Fitzpatrick, an optical beam heats a target spot on the magneto-optical medium so that the spot reaches the Curie point (see Col. 2, lines 8-10 of Fitzpatrick).[2] Without the optical writing portion of magneto-optical writing, the target area would not be heated to the Curie point and the application of the magnetic field from the magnetic half would have no affect on the magnetic storage domain. Therefore, both optical writing and magnetic writing are necessary for and are encompassed by magneto-optical writing.

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[1] Commonly known and used magneto-optical media require optical and magnetic writing (see Maeda et al (US 5,633,844), Col. 1, lines 51-56).

[2] It is noted that the optical writing of the magneto-optical medium of Fitzpatrick, in which an optical beam heats a target spot on the magneto-optical medium so that the spot reaches the Curie point, is consistent with optical writing of other optical mediums, such as phase transition or dye mediums, in which an optical beam heats a target spot on the optical medium so that the spot reaches a certain point. For phase transition media, the certain point is the point necessary to result in a crystalline or amorphous atomic structure. For dye media, the certain point is the point necessary to change the dye's reflectance. For magneto-optical media, the certain point is the Curie point.

In the disclosure of Fitzpatrick, the laser source (Fig. 6, element 640) performs writing by supplying a pulsed laser beam, which has been modulated in accordance with the input data, to the recoding medium in conjunction with an appropriate magnetic field supplied by the permanent magnet (Fig. 6, element 680) (see Col. 5, lines 44-64 and Col. 6, lines 11-20). The claimed "optical writing" reads on the writing of Fitzpatrick simply because the laser source of Fitzpatrick performs writing by supplying a pulsed laser beam, which has been modulated in accordance with the input data, to the recoding medium (Fig. 6 and Col. 5, lines 51-64).

Accordingly, Fitzpatrick discloses "optically writing the input data on the optical recording medium using the adaptive write pulse" as is claimed in claims 1, 3 and 4.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ootaki et al (US 5,734,637) disclose a "magnetooptic disc" as an example of a "DVD-RAM" (Col. 11, lines 61-67). Van Der Enden et al (US 6,151,581) disclose that a magneto-optically recording layer is provided in a DVD-RAM (Col. 3, lines 35-44).

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V. Battaglia whose telephone number is (571) 272-7568. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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